Space Weather Forecast

Issued on Wednesday, 21 August 2024 at 13:07 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Minor to Moderate flares expected, chance of Strong flares, risk reducing slightly. Slight chance of G1/Minor Storms from late Day 1 (21 Aug). Chance of exceeding S1/Minor Radiation Storm.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity was Moderate, with two low level Moderate-class flares recorded in the last 24 hours, with a peak flare at 20/1708UTC from a small bi-polar region in the northeast. There are thirteen regions on the visible disc. A large region in the far northwest is now almost rotated around the northwest limb. Another large region approaching centre disc in the south has shown some consolidation in its intermediate spots in recent hours. A further large region in the southeast has shown some fragmentation in its intermediate portion in most recent imagery. The other sunspot regions are comparatively smaller or less complex, and either stable or in slight decay.

A filament lift-off from the northeast quadrant around 20/1708UTC is now assessed as not producing a CME (Coronal Mass Ejection). No other Earth directed CMEs have been observed in available imagery.

Solar Wind / Geomagnetic Activity: The solar wind continued in a slow regime. The Interplanetary Magnetic Field was weak. The north-south component varied weakly but was often southward directed. Geomagnetic activity was Quiet to Unsettled (Kp 1-3).

Energetic Particles / Solar Radiation: No solar radiation storms were observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Moderate-class flares are expected with a chance of Strong flares, however the departure of a complex region should see a slight dip in daily risks.

Solar Wind /Geomagnetic Activity: The geomagnetic forecast is of lower-than-average confidence in detail for this period. A CME occurring around 17/1030UTC has a small chance of giving glancing impacts late on Day 1 (21 Aug). A filament lift-off from the northeast quadrant around 20/1708UTC is now assessed as not producing a CME.

Some coronal hole fast wind influence is likely early on Day 3, perhaps combining with the CME from 17 August. A second fast wind may again combine with any CME influence from 20 August to bring some increased activity later on Day 4.

Largely Quiet activity is expected at first, perhaps increasing to Unsettled to Active with a slight chance of G1/Minor Storm intervals through Days 2 to 4 under various potential CME and fast wind features.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

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Met Office Space Weather Forecast

Energetic Particles / Solar Radiation: Solar radiation is likely to persist at background levels, however there is a chance of exceeding the S1/Minor solar radiation storm level should any notable flares occur.

Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	25	25	25	25
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	Yes	80	75	60	60
Very Active	R3 to R5 X	No	25	20	15	15

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	25	25	25	25
Very Active	≥ S3 *	No	5	5	5	5
* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

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